UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION III



Environmental Sciences Center 701 Mapes Road Fort Meade, Maryland 20755-5350

DATE:

February 8, 2012

SUBJECT:

Region III Data QA Review

FROM:

Colleen Walling Colle C War

Region III ESAT RPO (3EA20)

TO:

Rich Fetzer

Remedial Project Manager (3HS31)

Attached is the inorganic data validation report for the Dimock Residential Groundwater site (Case #: 180-3644-1) completed by the Region III Environmental Services Assistance Team (ESAT) contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2763.

Attachment

TO: #0037

TDF: #02025A

cc: Gene Nance (Techlaw)

Suddha Graves (Techlaw)

OFFICE OF ANALYTICAL SERVICES AND QUALITY ASSURANCE

Printed on 100% recycled/recyclable paper with 100% post-consumer fiber and process chlorine free.

Customer Service Hotline: 1-800-438-2474

Lockheed Martin IS&GS - Civil
Energy & Environment
ESAT Region 3
US EPA Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-5350

Ex. 4 - CBI

DATE:

February 7, 2012

SUBJECT:

Level IM2 Inorganic Data Validation for Project 180-3644-1

SDG: H-1 Site: Dimock

FROM:

Ex. 4 - CBI

Senior Data Reviewer

Through:

Ex. 4 - CBI

Senior Data Review Chemist

TO:

Colleen Walling

ESAT Region 3 Project Officer

OVERVIEW

Project 180-3644-1, Sample Delivery Group (SDG) H-1, from the Dimock site consisted of eleven (11) aqueous samples analyzed for total metals by ICP-MS and for mercury (Hg) by cold vapor technique and eleven (11) filtrate samples analyzed for dissolved metals by ICP-MS and for dissolved mercury (Hg) by cold vapor technique. All samples were submitted to Test America Laboratories Pittsburg (TALP). Samples were analyzed for metals and mercury (Hg) in accordance with EPA Methods 6020 and 7470, respectively.

SUMMARY

Data were validated according to the Region 3 Modifications to the National Functional Guidelines for Inorganic Data Review, level IM2 and is assigned the Superfund Data Validation Label S4VM (Stage_4_Validation_Manual). Areas of concern with respect to data usability are listed below.

Data in this Case have been impacted by outliers present in the laboratory blanks as well as the ICP serial dilution analyses. Details for these outliers are discussed under "Minor Problems", specific samples affected are outlined in "Table 1A" and qualified analytical results for all samples are summarized on the Data Summary Forms (DSFs).

MINOR PROBLEMS

Method (MB) and Continuing Calibration (CCB) Blanks had reported results greater than the Method Detection Limits (MDLs) as listed below. Positive results reported for these analytes, which were less than five times (< 5X) the blank concentration, may be biased high and have been qualified "B" on the DSFs.

Total Metals:

Blank Analytes

CCB manganese (Mn), molybdenum (Mo), antimony (Sb)

MB aluminum (Al), arsenic (As), boron (B), chromium (Cr), copper (Cu),

Iron (Fe), potassium (K), nickel (Ni), selenium (Se), vanadium (V)

Dissolved Metals:

Blank Analytes

CCB Al, cobalt (Co), Mn, Sb, thallium (Tl)

MB silver (Ag), barium (Ba), B, beryllium (Be), Cr, Cu, Fe, lead (Pb),

Mo, V, zinc (Zn)

In the total metals analyses, Percent Differences (%Ds) for the ICP serial dilution analysis were outside the control limit (>10%) for B, magnesium (Mg) and Mn. Positive results for these analytes in affected samples in this matrix are estimated and have been qualified "J" on the DSFs unless superseded by "B".

NOTES

Positive results which are less than the Reporting Limits (RLs) but greater than MDLs have been qualified "J" on the DSFs unless superseded by "B".

Matrix spike, matrix spike duplicate and ICP serial dilution were performed for both total and dissolved samples. Data were qualified accordingly.

In the total metal analyses, several analyte concentrations reported on Form 8 - IN (ICP Serial Dilution) did not match the initial sample results as reported on the Form Is. This from was corrected and the Percent Differences (%Ds) were recalculated by the reviewer. Data were qualified based on the corrected %Ds.

The requirement for ICP-MS and cold vapor MDLs to be performed within one (1) year of sample analysis was not met by the laboratory. No action was taken by the reviewer based on these findings.

ATTACHMENTS

INFORMATION REGARDING REPORT CONTENT

TABLES 1A SUMMARY OF QUALIFIERS ON DATA SUMMARY FORMS AFTER DATA VALIDATION CODES USED IN COMMENTS COLUMN OF TABLES 1A TABLE 1B GLOSSARY OF DATA QUALIFIER CODES APPENDIX A

APPENDIX B DATA SUMMARY FORM(S)

APPENDIX C CHAIN OF CUSTODY RECORD(S)

APPENDIX D LABORATORY CASE NARRATIVE(S)

DCN: Project 180-3644-1IM2

PROJECT: 180-3644-1

SDG#: H-1

TOTAL METALS

		NON-		
ANALYTE Al	SAMPLES AFFECTED H-1, FH-1, FPT-1, KDE-1, D-1	POSITIVE DETECTED VALUES B	BIAS High	COMMENTS* MB (2.95 J μg/L)
As	H-1, FH-1, FPT-1, R-1, R-2, RD-1, RU-1, KDE-1, D-1	В	High	MB (0.424 J μg/L)
B . *	All Samples Except D-1	. J		ISD (42%)
	D-1	В		MB (1.91 J μg/L) ISD (42%)
Cr	All Samples	В		MB (1.64 J μg/L)
Cu	H-1, FH-1, R-1, R-2, RD-1, RU-1, N-1, D-1	B	High	MB (0.720 J μg/L)
Fe	FPT-1, RD-1, RU-1, KDE-1, N-1, D-1	В	High	MB (18.2 J μg/L)
K	N-1	· B		MB (41.2 J μg/L)
Mg	All Samples	J		ISD (22%)
Mn	All Samples Except N-1, D-1	, J .		ISD (33%)
	N-1, D-1	В		CCB (0.0590 J μg/L) ISD (33%)

^{*} See explanation of Comments on Table 1B.

PROJECT: 180-3644-1

SDG#: H-1

TOTAL METALS

			NON-		
	SAMPLES	70 to 20 and 10	DETECTED	TOTAL OF	
ANALYTE Ni	AFFECTED H-1, FH-1, FPT-1, R-1, R-2, RD-1, RU-1	<u>VALUES</u> B	VALUES	<u>BIAS</u> High	COMMENTS* MB (0.532 J μg/L)
Мо	H-1, FPT-1, S-1, R-1, R-2, RD-1, KDE-1	. B .		High	CCB (0.503 J µg/L)
Sb	All Samples	3		High	CCB (0.704 J µg/L)
Se	All Samples	В		High	MB (1.72 J μg/L)
V	FPT-1, R-1, RD-1 D-1	В		High	MB (0.492 J μ g/L)

^{*} See explanation of Comments on Table 1B

PROJECT: 180-3644-1

SDG#: H-1

DISSOLVED METALS

	and the second s		NON-		
ANALYTE	SAMPLES AFFECTED	POSITIVE I	VALUES	BIAS	COMMENTS*
Ag	H-1, FH-1	B	TADULIS	High	MB (0.0820 J μg/L)
Al	H-1, FH-1, S-1, R-2, RD-1, RU-1, KDE-1	B		High	CCB (5.98 J µg/L)
Ba	N-1, D-1	В		High	MB (0.752 J μ g/L)
В	FH-1, RD-1, RU-1, N-1, D-1	В			MB (3.03 J μg/L)
Be	S-1	В		High	MB (0.0370 J μ g/L)
Co	FH-1, FTP-1, S-1, R-1, R-2, RD-1	В			CCB (0.0430 J µg/L)
Cr	All Samples	В			MB (1.45 J μg/L)
Cu	All Samples Except, FPT-1	В		High	MB (0.644 J μ g/L)
Fe	H-1, FH-1, FPT-1, R-2	В		High	MB (19.3 J μg/L)
Mn	H-1, FPT-1, S-1, RD-1, RU-1, N-1, D-1	В			CCB (0.409 J µg/L)
Pb	All Samples	В			MB (0.0690 J μg/L)
Мо	H-1, FH-1, FPT-1, S-1, R-1, R-2	В			MB (0.907 J μ g/L)

^{*} See explanation of Comments on Table 1B.

PROJECT: 180-3644-1

SDG#: H-1

DISSOLVED METALS

ANALYTE Sb	SAMPLES AFFECTED All Samples	POSITIVE DETECTION VALUES B	CTED	COMMENTS* CCB (1.18 J μg/L)
TI	All Samples Except KDE-1, D-1	В	High	CCB (0.0500 J µg/L)
V	FPT-1, S-1, RU-1	В	High	MB (0.119 J μ g/L)
Zn	H-1, FH-1, R-1, RD-1, RU-1, KDE-1 N-1, D-1	В		MB (1.74 J μg/L)

^{*} See explanation of Comments on Table 1B.

TABLE 1B CODES USED IN COMMENTS COLUMN

- MB = Method blanks (MBs) had results greater than the MDLs (results are in parenthesis). Positive results less than five times (<5X) the value of the blank may be biased high.
- ISD = Percent Differences (%Ds) for the ICP serial dilution analyses exceeded the control limit (10%) [% Ds are in parenthesis]. Reported results are estimated.
- CCB = Continuing calibration blanks (CCBs) had results greater than the MDLs (results are in parenthesis). Positive results less than five times (<5X) the value of the blank may be biased high.

APPENDIX A

Glossary of Qualifier Codes

GLOSSARY OF DATA QUALIFIER CODES (INORGANIC)

CODES RELATED TO IDENTIFICATION

(confidence concerning presence or absence of analytes):

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

(NO CODE) = Confirmed identification.

- B = Not detected substantially above the level reported in laboratory or field blanks.
- R = Unusable result. 'Analyte may or may not be present in the sample. Supporting data necessary to confirm result.
- N = Tentative identification. Consider present.
 Special methods may be needed to confirm its presence or absence in future sampling efforts.

CODES RELATED TO QUANTITATION

(can be used for both positive results and sample quantitation limits):

- J = Analyte Present. Reported value may not be accurate or precise.
- K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.
- L = Analyte present. Reported value may be biased low.
 Actual value is expected to be higher.
- UJ = Not detected, quantitation limit may be inaccurate or imprecise.
- UL = Not detected, quantitation limit is probably higher.

OTHER CODES

O = No analytical result.

APPENDIX B

Data Summary Forms

SDG: H-1

Number of Soil Samples: 0

Site: DIMOCK

Number of Water Samples: 11

Lab. : TALP

TOTAL METALS

Sample Number:		H-1		FH-1		FPT-1		S-1		R-1	
Station Location:		H-1		FH-1		FPT-1		S-1		R-1	1
Laboratory ID:		180-3644-1		180-3644-	2	180-3644-	3	180-3644-4	1	180-3644-5	j
Field QC:											
Matrix :		Water		Water		Water		Water		Water	
Units:		μg/L		µg/L		µg/L		µg/L		µg/L	
Date Sampled :	Η	9/01/2011		9/01/2011		9/01/2011		9/01/2011		9/01/2011	
Time Sampled :	:	11:15		08:40		9:35		10:15		13:20	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
ANALYTE	RL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
SILVER	1.0							0.058	J		
ALUMINUM	30	6.8	В	14	В	3.4	В	4200		21	J
ARSENIC	1.0	1.2	В	1.7	В	1.7	В	7.2	İ	1.6	В
BARIUM	10	140		120		260		230		650	
BORON	5.0	46	J	27	J	35	J	30	J	42	J
BERYLLIUM	1.0							0.24	J		
CALCIUM	100	4400	1	37000		41000		30000		25000	
CADMIUM .	1.0										
COBALT	0.50			0.19		0.082	J	3.1		0.10	J
CHROMIUM	2.0	, 2.2	В	2.3	В	2.3	В	3.9	ļв	2.2	В
COPPER	2.0	1.5	В	2.5	В	7.2		27		1.4	В
IRON	50	250		110		22	В	5000		1600	
POTASSIUM	100	1900		1000	İ	1400	l	2600		1400	
MAGNESIUM	100	1200	J	8700	J	8700	J	7100	J	8100	J
MANGANESE	0.50	1.8	J	95	J	1.4	J	200	J	72	J
SODIUM	100	16000		10000		10000		8600		12000	
NICKEL	1.0	0.66	В	0.50	В	0.49	В	4.2		0.73	В
LEAD	1.0	0.078	IJ	1.5		0.31	J	10		0.25	J
MOLYBDENUM	5.0	0.60	В	6.3		1.5	В	1.2	В	1.6	В
ANTIMONY	2.0	0.094	В	0.12	В	0.091	В	1.9	В	0.31	В
SELENIUM	5.0	2.0	В	1.5	В	1.6	В	1.2	В	0.71	В
THALLIUM	1.0			0.27	J	0.12	J	0.078	J		
VANADIUM	1.0		I		I	0.86	В	5.0	I	0.40	В
ZINC	5.0	10		24		7.7		140		8.5	
MERCURY	0.20		1			I	I	I			

RL = Reporting Limit

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (RL * Dilution Factor)

SDG: H-1

Site : DIMOCK

Lab.: TALP

TOTAL METALS

Sample Number:		R-2	onedkyedlistingdenn	RD-1	***************************************	RU-1	iyleyenganiminye	KDE-1		N-1	
Station Location:		R-2		RD-1		RU-1		KDE-1		N-1	
Laboratory ID:		180-3644-6		180-3644-	7	180-3644-	8	180-3644-9).	180-3644-1	0
Field QC:											
a research to the control of the con							·			l	
Matrix :		Water		Water		Water		Water		Water	
Units:		μg/L		µg/L		μg/L		µg/L		μg/L	
Date Sampled :		9/01/2011	*	9/01/2011		9/01/2011		9/01/2011		9/01/2011	
Time Sampled :		13:40		14:10		14:45		15:35		17:45	
Dilution Factor:		1.0		1.0		1.0		1.0		1.0	
ANALYTE	RL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
SILVER	1.0			, , , , , , , , , , , , , , , , , , ,							
ALUMINUM	30	23	J	33		32		7.6	В	24	J
ARSENIC	1.0	1.1	В	0.78	В	0.52	В	0.67	В		
BARIUM	10	640		33		- 33		100		0.12	J
BORON	5.0	41	J	14	J	- 15	J	180	J	8.4	J
BERYLLIUM	1.0					***			1		
CALCIUM	100	26000	l	9300		9400		1500	l	11000	
CADMIUM	1.0						1				
COBALT	0.50	0.098	J			ä "					
CHROMIUM	2.0	1,2	В	1.2	В	1.1	В	1.3	В	1.3	В
COPPER	2.0	2.2	В	0.90	В	1.0	В	4.2		0.33	В
IRON	50	1400		40	В	36	В	15	В	11	В
POTASSIUM	100	1400		1400		1400		1500		70	В
MAGNESIUM	100	8100	J	1900	J	1900		160	J	3800	J
MANGANESE	0.50	74	J	3.1	J	20	J	2.4	J	0.056	В
SODIUM	100	12000		5500		5500		100000		9600	
NICKEL	1.0	0.38	В	0.21	В	0.25	В	I	l		I
LEAD	1.0	0.58	J	0.055	J	0.064	J	0.080	J		
MOLYBDENUM	5.0	1.2	В	0.22	В			0.33	В		
ANTIMONY	2.0	0.16	В	0.14	В	0.084	В	0.058	В	0.19	В
SELENIUM	5.0	1.0	В	1.3	В	1.2	В	0.93	В	1.1	В
THALLIUM	1.0										
VANADIUM	1.0			0.44	В	I					
ZINC	5,0	56		1.3	J	1.9	J	2.2	J	ksti ė	1
MERCURY	0.20			,							

RL = Reporting Limit

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (RL * Dilution Factor)

SDG: H-1

Site: DIMOCK

Lab.: TALP

TOTAL METALS

	D.4		L METALS					in the same of the same of the same of the same of the same of the same of the same of the same of the same of		,
:					:					
			4.							
	100-3044-1									
	Water									
									:	
					:					
	1.0									
RL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
1.0										
30	2.7	В								9
1.0	0.73	В							:. :	
10	0.15	U								
5.0	5.0	В				Name of the last)		:	9000000
1.0									-1.7	
100	250				:					
1.0										
0.50										
2.0	1.3	В								1
2.0	0.31	В								
50	13	В								
100	3100						·			
100	3000	J								•
0.50	0.054	В						l.		
100	1600									
1.0										
1.0										1
5.0										
2.0	0.15	В								
1 1	0.60	В				l			<u> </u>	
1.0										
1.0	0.24	В								
0.20	produktiva verdina en een G		:					1		I
	1.0 30 1.0 10 5.0 100 100 2.0 2.0 2.0 50 100 100 1.0 1.0 5.0 2.0 5.0 1.0 5.0	Water µg/L 9/01/2011 18:15 1.0 RL Result 1.0 30 2.7 1.0 0.73 10 0.15 5.0 5.0 1.0 100 250 1.0 0.50 2.0 1.3 2.0 0.31 50 13 100 3100 100 3000 0.50 0.054 100 1600 1.0 1.0 1.0 5.0 2.0 0.15 5.0 2.0 0.15 5.0 1.0 1.0 1.0 1.0 1.0 1.0	D-1 D-1 180-3644-11 Water µg/L 9/01/2011 18:15 1.0 RL Result Flag 1.0 30 2.7 B 1.0 0.73 B 10 0.15 J 5.0 5.0 B 10 250 110 250 110 250 110 250 110 3000 J 0.50 13 B 100 3100 100 3100 100 3000 J 0.50 0.054 B 100 1600 1 1.0 1500 B 1.0 1500 B 1.0 1500 B 1.0 1500 B 1.0 1500 B 1.0 1500 B 1.0 1500 B 1.0 1500 B 1.0 1500 B 1.0 1500 B 1.0 1500 B 1.0 1500 B 1.0 1500 B 1.0 1500 B 1.0 0.244 B 1.0 0.244 B	D-1 D-1 180-3644-11 Water µg/L 9/01/2011 18:15 1.0 RL Result Flag Result 1.0 30 2.7 B 1.0 0.73 B 10 0.15 J 5.0 5.0 B 1.0 250 1.0 0.50 2.0 1.3 B 2.0 0.31 B 50 13 B 100 3100 100 3000 J 0.50 0.054 B 100 1600 B 100 1.0 1.0 1.0 5.0 2.0 0.15 B 5.0 0.60 B 1.0 1.0 1.0 B 1.0 B 1.0	D-1 D-1 180-3644-11 Water	D-1 D-1 180-3644-11 Water µg/L 9/01/2011 18:15 1.0 RL Result Flag Result Flag Result 1.0 30 2.7 B 1.0 0.73 B 10 0.15 J 5.0 5.0 B 1.0 100 250 1.0 0.50 2.0 1.3 B 50 13 B 50 13 B 100 3100 100 3000 J 0.50 13 B 100 1600 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1	D-1 D-1 180-3644-11 Water µg/L 9/01/2011 18:15 1.0 RL Result Flag Result Flag Result Flag 1.0 30 2.7 B 1.0 0.73 B 10 0.15 J 5.0 5.0 B 1.0 100 250 1.0 0.50 2.0 1.3 B 2.0 0.31 B 50 13 B 100 3100 100 3000 J 0.50 0.054 B 100 1600 1.0 1.0 1.0 5.0 2.0 0.15 B 5.0 0.60 B 1.0 1.0 1.0 5.0 2.0 0.15 B 5.0 0.60 B 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	D-1 D-1 180-3644-11 Water µg/L 9/01/2011 18:15 1.0 RL Result Flag Result Flag Result Flag Result 1.0 30 2.7 B 1.0 0.73 B 10 0.15 J 5.0 5.0 B 1.0 100 250 1.0 0.50 2.0 1.3 B 50 13 3100 100 3000 J 0.50 0.054 B 100 110 5.0 5.0 0.60 B 1.0 1.0 1.0 5.0 2.0 0.15 B 5.0 0.60 B 1.0 1.0 1.0 5.0 2.0 0.15 B 5.0 0.60 B 1.0 1.0 1.0 1.0 5.0 0.24 B 5.0 0.24 B 5.0 3.4 J	D-1 D-1 180-3644-11 Water µg/L 9/01/2011 18:15 1.0 RL Result Flag Result Flag Result Flag Result Flag 1.0 30 2.7 B 1.0 0.73 B 10 0.15 J 5.0 5.0 B 1.0 100 250 1.0 0.60 2.0 1.3 B 50 13 B 50 13 B 50 13 B 100 3100 100 3000 J 0.50 0.054 B 100 1600 1.0 1.0 1.0 5.0 2.0 0.15 B 5.0 0.60 B 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	D-1 D-1 180-3644-11 Water µg/L 9/01/2011 18:15 1.0 RL Result Flag Result Flag Result Flag Result Flag Result 1.0 30 2.7 B 10 0.15 J 5.0 5.0 B 1.0 100 250 1.0 100 250 1.0 100 3100 100 3100 100 3000 J 0.50 0.604 B 100 1600 1.0 1.0 1.0 5.0 2.0 0.15 B 5.0 0.60 B 1.0 1.0 1.0 1.0 1.0 5.0 2.1 B 5.0 0.60 B 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0

RL = Reporting Limit

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (RL * Dilution Factor)

SDG: H-1

Site: DIMOCK

Lab. : TALP

DISSOLVED METALS

Sample Number:		H-1		FH-1		FPT-1		S-1		R-1	
Station Location:		H-1		FH-1		FPT-1		S-1		R-1	
Laboratory ID:		180-3644-1		180-3644-	2	180-3644-	3	180-3644-4		180-3644-5	
Field QC:										###	
Matrix :		Water		Water		Water		Water		Water	
Units:	:	µg/L		µg/L		µg/L		µg/L		μg/L	
Date Sampled :		9/01/2011		9/01/2011		9/01/2011		9/01/2011		9/01/2011	ÃC
Time Sampled :		11:15		08:40		9:35		10:15		13:20	
Dilution Factor :	9.	1.0		1.0		1.0		1.0		1.0	k.
ANALYTE	RL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
SILVER	1.0	0.065	В	0.042	В				T T		Ī
ALUMINUM	30	3.6	В	4,1	В			3.8	В		
ARSENIC	1.0	0.82	J	0.85	J			1.1		1.0	
BARIUM	10	120		110		230		150		580	1
BORON	5.0	36		13	В	230		29		38	1
BERYLLIUM	1.0							0.059	В		
CALCIUM	100	3900		35000		37000		29000		23000	
CADMIUM	1.0										l
COBALT	0.50			0.039	В	0.090	В	0.056	В	0.097	В
CHROMIUM	2.0	1.9	В	1.6	В	1.9	В	2.0	В	1.8	В
COPPER	2.0	1.2	В	1.3	В	5.6		2.2	В	1.1	В
IRON	50	21	В	7,4	В	50	В				1
POTASSIUM	100	1600		980		1500		1100		1300	
MAGNESIUM	100	1000		7700		7400		5900		7000	
MANGANESE	0.50	0.68	В	3.4	1	0.37	В	0.19	В	68	
SODIUM	100	14000		9600		10000		8700		11000	1
NICKEL	1.0							0.19	J	0.17	J
LEAD	1.0	0.045	В	0.077	В	0.098	В	0.029	В	0.030	В
MOLYBDENUM	5.0	3.7	В	1.4	В	1.5	В	0.90	В	1.0	В
ANTIMONY	2.0	0.55	В	0.27	В	0.30	В	0.18	В	0.070	В
SELENIUM	5.0	0.53	J								l
THALLIUM	1.0	0.14	В	0.073	В	0.11	В	0.10	В	0.043	В
VANADIUM	1.0					0.21	В	0.33	В		
ZINC	5.0	3.9	В	8.3	В	13		48		3.4	В
MERCURY	0.20		1		1	1	ļ	:			

RL = Reporting Limit

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (RL * Dilution Factor)

SDG: H-1

Site : DIMOCK Lab. : TALP

DISSOLVED METALS

Sample Number:		R-2		RD-1		RU-1		KDE-1		N-1	
Station Location:		R-2		RD-1		RU-1		KDE-1		N-1	
Laboratory ID:		180-3644-6		180-3644-7	7	180-3644-	3	180-3644-9)	180-3644-1	0
Field QC:		1. 1. A.S. 110, L.Y. 11. 12. 13. 14.									
Matrix : Units : Date Sampled : Time Sampled :		Water μg/L 9/01/2011 13:40		Water µg/L 9/01/2011 14:10		Water µg/L 9/01/2011 14:45		Water µg/L 9/01/2011 15:35		Water µg/L 9/01/2011 17:45	
Dilution Factor:		1.0		1.0	Otrin denistration de la constant	1.0	-	1.0		1.0	
ANALYTE	RL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
SILVER	1.0										
ALUMINUM	30	11	В	6.1	В	7.4	В	4.3	В		
ARSENIC	1.0	1.2	1	0.40	J	0.78	J	0.49	J		1
BARIUM	10	560		30		32		86		0.16	В
BORON	5.0	36		11	В	13	В	160		7.3	В
BERYLLIUM	1.0										
CALCIUM	100	23000		8600		8800		1400		11000	1
CADMIUM	1.0										
COBALT	0.50	0.071	В	0.032	В						
CHROMIUM	2.0	1.6	В	1.0	В	1.2	В	1.2	В	1.6	В
COPPER	2.0	0.91	В	1.6	В	1.7	В	2.3	В	1.2	В
IRON	50	14	В								
POTASSIUM	100	1300		1300		1300		1300		200	l
MAGNESIUM	100	6800		1700		1700		170		3500	
MANGANESE	0.50	67		0.27	В	1.5	В	3.0		0.13	В
SODIUM	100	11000		5500		5600		90000		9600	
NICKEL	1.0	0.25	J			.				0.69	J
LEAD	1.0	0.10	В	0.029	В	0.050	В	0.074	В	0.036	В
MOLYBDENUM	5.0	0.95	В								1
ANTIMONY	2.0	0.12	В	1.2	В	0.40	В	0.28	В	0.30	В
SELENIUM	5.0	0.44	J			0.43	J			.	
THALLIUM	1.0	0.050	В	0.025	В	0.020	В			0.015	В
VANADIUM	1.0					0.50	В]	
ZINC	5.0	9.1		3.0	В	4.8	В	3.8	В	3.4	В
MERCURY	0.20								1	1	

RL = Reporting Limit

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (RL * Dilution Factor)

SDG: H-1

Site : DIMOCK Lab. : TALP

DISSOLVED METALS

Sample Number:		D-1									
Station Location:		D-1									
		180-3644-1	1								
Matrix :		Water				£.					
Units:		µg/L									
Date Sampled :		9/01/2011	I								
Time Sampled :		18:15									
Dilution Factor :		1.0									
ANALYTE	RL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
SILVER	1.0		†	3. 3. 3. 3. 3. 4. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	1						
ALUMINUM	30										1
ARSENIC	1.0					a / ., a					I
BARIUM	10	0.18	В								1
BORON	5.0	3.0	В								
BERYLLIUM	1.0										
CALCIUM	100	400									
CADMIUM	1.0										
COBALT	0.50										
CHROMIUM	2.0	1.5	В								
COPPER	2.0	1.1	В							· .	
IRON	50	2.3									
POTASSIUM	100	2900				25					
MAGNESIUM	100	2700									
MANGANESE	0.50	0.16	в					:			
SODIUM	100	1600									
NICKEL	1.0										
LEAD	1.0	0.037	В								
MOLYBDENUM	5.0										
ANTIMONY	2.0	0.21	l a l			The state of the s					
SELENIUM	5.0	0.59	J								
THALLIUM	1.0										
VANADIUM	1.0										I
ZINC	5.0	3.1	B								
MERCURY	0.20										

RL = Reporting Limit

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (RL * Dilution Factor)

APPENDIX C

Chain of Custody (COC) Records

TestA	merica Laboratory location:	of Custody Record Pittsburgh	Water	TestAmerica THE LEADER HI ERVINOVAMENTA, TENTING TESTAMERICAL LEBORRISTER, Inc.
UPS Corporation Address 501 Holday Dr., Suite 300 Pittsburgh, DA 15220	Client Project Manager: Thomas Merski Telephone: 412-503-4603 Email: Lames-Pinta@urscorp.com	Sile Collect Jim Pinta Telephone 412-860-6242(Cell)	Carrie frame Telephone: 412-963-705	oer ⁶⁰ 005410
Project Number 412-503-4700 Project Number K&L Gates Focused Site Assessment 29938688.00001	David-Blanchilda uncorp.com Method of Shipment Carrier FEAEX Next Day Air Shipping/Tracking No.	TAT I different form below. 3 weeks 2 weeks 2 days 2 days 1 day 2 days 2 days 2 days 3 days	CO PATRICTURE CO	Man la Ngols GRo As
Sample Gentification	Serregia Date: Semple Time: 2 3 3 3 5 5 5 5 5 5 5 6 6 6 6 6 6 6 6 6 6	1150A 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	NAXXXXX	Specific Instruction:
FPT-1 S- R-1 R-2	9/1/11 9:35 A. X 9/1/11 10:15 A. X 9/1/11 1:20 F. X 9/1/11 1:400 X			1
RD-1 Ry=1 N-(9/1)11 2:10-Pm X 9/11 3:35 mx 9/11 5:45 p/X			
D+1 Postifie Heart of Infrastitionation Non-Heart Of Planmanho Sk Special Instructional CR Repair curves & Comments Relineasished by	7/11/ 9:15 PN Unknown	Sample Disposal (A fee rany be assessed if san	isples are retained longer than a useful) By Lab Archive Eq. (Georgeset)	Months I
Relinquished by Rollinquished by	Company: Date Time:	Received by Received by Received to Labora Sary by:	Company:	### Date Times TAL 0018-1 (04/10)

2002 - 12 1 10 101			Container	Preservative	
Client Sample ID	Lab ID	Container Type	pН	Added (mls)	Lot#
H-1	180-3644-A-1	Plastic 1 liter - unpreserved		***************************************	-
H-1	180-3644-B-1	Amber Glass 1 liter - Hydrochloric	<u>z</u>	***********	
H-1	180-3644-C-1	Amber Glass 1 liter - Hydrochloric	22 2 2 - - - - -		***************************************
H-1	180-3644-D-1	Amber Glass 1 liter - Sulfuric Acid	2		· •
H-1	180-3644-E-1	Amber Glass 1 liter - Sulfuric Acid	<u>~</u>	***************	
H-1	180-3644-F-1	Amber Glass 1 liter - unpreserved		***************************************	· · · · · · · · · · · · · · · · · · ·
H-1	180-3644-G-1	Amber Glass 1 liter - unpreserved	Secondon and a second		
H-1	180-3644-H-1	Plastic 500ml - with Nitric Acid	ユ	····	
H-1	180-3644-1-1	Plastic 500ml - unpreserved	· promissionis	(American Association)	v
H-1	180-3644-J-1	Plastic 250ml - with Sulfuric Acid	<u>て</u>		
H-1	180-3644-K-1	Voa Vial 40ml - unpreserved	********	***************************************	
H-1	180-3644-L-1	Voa Vial 40ml - unpreserved			
H-1	180-3644-M-1	Voa Vial 40ml - unpreserved			¥1
H-1	180-3644-N-1	Voa Vial 40ml - Hydrochloric Acid	P		*
H-1	180-3644-0-1	Voa Vial 40ml - Hydrochloric Acid	1_		
H-1	180-3644-P-1	Voa Vial 40ml - Hydrochloric Acid			
Н-1	180-3644-Q-1	Voa Vial 40ml - Hydrochloric Acid			
H-1	180-3644-R-1	Voa Vial 40ml - Hydrochloric Acid			
H-1	180-3644-S-1	Voa Vial 40ml - Hydrochloric Acid	V		
H-1	180-3644-T-1	Voa Vial 40ml - with Sodium	P		7 9 2 200
H-1	180-3644-U-1	Voa Vial 40ml - with Sodium	1		
H-1	180-3644-V-1	Voa Vial 40ml - with Sulfuric Acid		· · · · · · · · · · · · · · · · · · ·	***************************************
H-1	180-3644-W-1	Voa Vial 40ml - with Sulfuric Acid	T		
PH-1	180-3644-A-2	Plastic 1 liter - unpreserved		(PPA-Markowska Markowska M	
FH-1	180-3644-B-2	Amber Glass 1 liter - Hydrochloric	Z	- Immarkator - Immarka	7
FH-1	180-3644-C-2	Amber Glass 1 liter - Hydrochloric	モ	7	
PH-L	180-3644-D-2	Amber Glass 1 liter - Sulfuric Acid	7		
FH-1	180-3644-E-2	Amber Glass 1 liter - Sulfuric Acid	乙	**************************************	
FH-1	180-3644-F-2	Amber Glass 1 liter - unpreserved	· mandada da di didango	·	
FH-1	180-3644-G-2	Amber Glass 1 liter - unpreserved	'mayanij-yakajambay'	, <u>alperture and the state of t</u>	indular and a second and a second
**** * FH-1	180-3644-H-2	Plastic 500ml - with Nitric Acid	2	· · · · · · · · · · · · · · · · · · ·	enter est est est est est est est est est est
FH-1	180-3644-I-2	Plastic 500ml - unpreserved	Moleconomistacile.	\ \(\)	(************************************
FH-I	180-3644-J-2	Plastic 250ml - with Sulfuric Acid	て		Annual Control of Control
PH-1	180-3644-K-2	Voa Vial 40ml - unpreserved		V	***************************************
PH-1	180-3644-L-2	Voa Vial 40ml - unpreserved	Andread September	-	***************************************
FH-1	180-3644-M-2	Voa Vial 40ml - unpreserved	******	- management	***************************************

Page 1 of 7

Page 2126 of 2137

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot#
FH-1	180-3644-N-2	Voa Vial 40ml - Hydrochloric Acid	<u> P</u>	-	
PH-1	180-3644-O-2	Voa Vial 40ml - Hydrochloric Acid		de consideration and the constant and	
FH-1	180-3644-P-2	Voa Vial 40ml - Hydrochloric Acid			
FH-1	180-3644-Q-2	Voa Vial 40ml - Hydrochloric Acid		·····	
FH-1	180-3644-R-2	Voa Vial 40ml - Hydrochloric Acid			
FH-1	180-3644-S-2	Voa Vial 40ml - Hydrochloric Acid	1_	*************************	
FH-1	180-3644-T-2	Voa Vial 40ml - with Sodium		Constitution of the Consti	
FH-1	180-3644-U-2	Voa Vial 40ml - with Sodium	1	***************************************	
FH-1	180-3644-V-2	Voa Vial 40ml - with Sulfuric Acid		**************************************	
FH-1	180-3644-W-2	Voa Vial 40ml - with Sulfuric Acid	<u>\P</u> _		
FPT-1	180-3644-A-3	Plastic 1 liter - unpreserved		*	
FPT-1	180-3644-B-3	Amber Glass 1 liter - Hydrochloric	で こ で で ご で	Name interior construction recognition.	***************************************
FPT-1	180-3644-C-3	Amber Glass 1 liter - Hydrochloric	~	enocontainen yhtein makka ja makka ja makka ja makka ja makka ja makka ja makka ja makka ja makka ja makka ja	**************************************
FPT-1	180-3644-D-3	Amber Glass 1 liter - Sulfuric Acid	て こ		
FPT-I	180-3644-F-3	Amber Glass 1 liter - impreserved	w <u>z</u>		10.00
FPT-1	180-3644-G-3	Amber Glass 1 liter - unpreserved	Alliagonillis		
FPT-1	180-3644-H-3	Plastic 500ml - with Nitric Acid	2		
FPT-1	180-3644-I-3	Plastic 500ml - unpreserved			
FPT-I	180-3644-J-3	Plastic 250ml - with Sulfuric Acid	1_		
FPT-1	180-3644-K-3	Voa Vial 40ml - unpreserved		**	Y YEAR
FPT-1	180-3644-L-3	Voa Vial 40ml - unpreserved			
FPT-1	180-3644-M-3	Voa Vial 40ml - unpreserved			
FPT-1	180-3644-N-3	Voa Vial 40ml - Hydrochloric Acid	<u>p</u> _		
PPT-1	180-3644-O-3	Voa Vial 40ml - Hydrochloric Acid			
PPT-1	180-3644-P-3	Voa Vial 40ml - Hydrochloric Acid			
FPT-1	180-3644-Q-3	Voa Vial 40ml - Hydrochloric Acid			
FPT-1	180-3644-R-3	Voa Vial 40ml - Hydrochloric Acid			-
PPT-1	180-3644-S-3	Voa Vial 40ml - Hydrochloric Acid			
FPT-1	180-3644-T-3	Voa Vial 40ml - with Sodium			
FPT-1	180-3644-U-3	Voa Vial 40ml - with Sodium			
FPT-1	180-3644-V-3	Voa Vial 40ml - with Sulfuric Acid		A. '	
FPT-1	180-3644-W-3	Voa Vial 40ml - with Sulfuric Acid	c.V	: ***	
S-1	180-3644-A-4	Plastic 1 liter - unpreserved			**************************************
S-1	1 80 -3644-B-4	Amber Glass 1 liter - Hydrochloric	2		
S-1	180-3644-C-4	Amber Glass 1 liter - Hydrochloric	2		
S-1	180-3644-D-4	Amber Glass 1 liter - Sulfuric Acid	2 2 2 2		
S-1	180-3644-E-4	Amber Glass 1 liter - Sulfuric Acid	て		
S-1	180-3644-F-4	Amber Glass 1 liter - unpreserved			***************************************
S-1	180-3644-G-4	Amber Glass 1 liter - unpreserved		North Control of the	***************************************
Page 2 of 7		Page 2127 of 2137	***************************************	· unversioner-erroren activité Philacole (polisique).	

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot#
S-1	180-3644-H-4	Plastic 500ml - with Nitric Acid	2_	***************************************	***************************************
S-I	180-3644-I-4	Plastic 500ml - unpreserved		. Neistannin and Antonio (Antonio (Anto	
S-1	180-3644-J-4	Plastic 250ml - with Sulfuric Acid	7_	Transmingenium,	
S-1	180-3644-K-4	Voa Vial 40ml - unpreserved			
S-1	180-3644-L-4	Voa Vial 40ml - unpreserved	**************************************		
S-1	180-3644-M-4	Voa Vial 40ml - unpreserved	Vannana V	**************	
S-1	180-3644-N-4	Voa Vial 40ml - Hydrochloric Acid	1	***************************************	
S-1	180-3644-O-4	Voa Vial 40ml - Hydrochloric Acid			
S-1	180-3644-P-4	Voa Vial 40ml - Hydrochloric Acid			2
S-1	180-3644-Q-4	Voa Vial 40ml - Hydrochloric Acid	1_		
S-1	180-3644-R-4	Voa Vial 40mi - Hydrochloric Acid	-		· ·
S-1	180-3644-S-4	Voa Vial 40ml - Hydrochloric Acid		SATURNIS CONTRACTOR CO	***************************************
S-1	180-3644-T-4	Voa Vial 40ml - with Sodium		*****************	
S-1	180-3644-U-4	Voa Vial 40ml - with Sodium			Th.
S-1	180-3644-V-4	Voa Vial 40ml - with Sulfuric Acid	1_	***************************************	
S-1	180-3644-W-4	Voa Vial 40ml - with Sulfuric Acid	<u>4</u>		
R-1	180-3644-A-5	Plastic 1 liter - unpreserved	************		
R-1	180-3644-B-5	Amber Glass 1 liter - Hydrochloric	2		
R-1	180-3644-C-5	Amber Glass 1 liter - Hydrochloric	2		
R-1	180-3644-D-5	Amber Glass 1 liter - unpreserved			
R-I	180-3644-E-5	Amber Glass 1 liter - unpreserved			
R-1	180-3644-F-5	Amber Glass I liter - unpreserved			
R-1	180-3644-G-5	Amber Glass 1 liter - unpreserved		, x. x. x. x. x. x. x. x. x. x. x. x. x.	
R-1	180-3644-H-5	Plastic 500ml - with Nitric Acid	~		
R-1	180-3644-I-5	Plastic 500ml - unpreserved			
R-1	180-3644-J-5	Plastic 250ml - with Sulfuric Acid	7		
R-1	180-3644-K-5	Voa Vial 40ml - unpreserved			
R-1	180-3644-L-5	Voa Vial 40ml - unpreserved			
R-1	180-3644-M-5	Voa Vial 40ml - unpreserved			
R-1	180-3644-N-5	Voa Vial 40ml - Hydrochloric Acid	P		
R-1	180-3644-0-5	Voa Vial 40ml - Hydrochloric Acid			
R-1	180-3644-P-5	Voa Vial 40ml - Hydrochloric Acid			54
R-1	180-3644-Q-5	Voa Vial 40ml - Hydrochloric Acid			
R-1	180-3644-R-5	Voa Vial 40ml - Hydrochloric Acid			
R-1	180-3644-S-5	Voa Vial 40ml - Hydrochloric Acid			
R-1	180-3644-T-5	Voa Vial 40ml - Hydrochloric Acid			
R-1	180-3644-U-5	Voa Vial 40ml - Hydrochloric Acid			
R-1	180-3644-V-5	Voa Vial 40ml - with Sulfuric Acid			
R-1	180-3644-W-5	Voa Vial 40ml - with Sulfuric Acid	4		
Page 3 of 7		Page 2128 of 2137	grandopatings .	omero n (1996) 23 24 24 24 25 26 26 26 26 26 26 26 26 26 26 26 26 26	

CABOT-EPA 003748

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot#
R-2	180-3644-A-6	Plastic 1 liter - unpreserved	***************************************	· · · · · · · · · · · · · · · · · · ·	
R-2	180-3644-B-6	Amber Glass 1 liter - Hydrochloric	222	William Wolfer and Control of the Co	
R-2	180-3644-C-6	Amber Glass 1 liter - Hydrochloric	2	****	***************************************
R-2	180-3644-D-6	Amber Glass 1 liter - Sulfuric Acid	2	And the second second second	· ·
R-2	180-3644-E-6	Amber Glass 1 liter - Sulfuric Acid	_	touchottetibidenementous.	Name of the second seco
R-2	180-3644-F-6	Amber Glass 1 liter - unpreserved		discount de la company	**************************************
R-2	180-3644-G-6	Amber Glass 1 liter - unpreserved			
R-2	180-3644-H-6	Plastic 500ml - with Nitric Acid	Z		
R-2	180-3644-I-6	Plastic 500ml - unpreserved		addinomialladiddalas	
R-2	180-3644-J-6	Plastic 250ml - with Sulfuric Acid	2	·	
R-2	180-3644-K-6	Voa Vial 40ml - unpreserved	**************************************	Name of the Name of the State o	
R-2	180-3644-L-6	Voa Vial 40ml - unpreserved		AND CONTRACTOR OF THE PARTY OF	The second secon
R-2	180-3644-M-6	Voa Vial 40ml - unpreserved	Approximate projectory		
R-2	180-3644-N-6	Voa Vial 40ml - Hydrochloric Acid	r	According to the Accord	- J <u>anuary - January - Jan</u>
R-2	180-3644-O-6	Voa Vial 40ml - Hydrochloric Acid	1	same de la companya del companya de la companya del companya de la	***************************************
R-2	180-3644-P-6	Voa Vial 40ml - Hydrochloric Acid		(since and in the control of	·
R-2	180-3644-Q-6	Voa Vial 40ml - Hydrochloric Acid		at one of the state 2:	
R-2	180-3644-R-6	Voa Vial 40ml - Hydrochloric Acid		approximate contract the resolution of the contract of the con	****
R-2	180-3644-S-6	Voa Vial 40ml - Hydrochloric Acid		***************************************	**************************************
R-2	180-3644-T-6	Voa Vial 40ml - Hydrochloric Acid		***************************************	
R-2	180-3644-U-6	Voa Vial 40ml - Hydrochloric Acid		to the same of the same of	
R-2	180-3644-V-6	Voa Vial 40ml - with Sulfuric Acid			
R-2	180-3644-W-6	Voa Vial 40ml - with Sulfuric Acid	上		
RD-1	180-3644-A-7	Plastic 1 liter - unpreserved	describing the same	***************************************	****
RD-1	180-3644-B-7	Amber Glass I liter - Hydrochloric	て	***************************************	#*************************************
RD-1	180-3644-D-7	Amber Glass 1 liter - Sulfuric Acid	2 2 2	44	44
RD-1	180-3644-B-7	Amber Glass 1 liter - Sulfuric Acid	<u>~</u>		
RD-I	180-3644-F-7	Amber Glass 1 liter - unpreserved		to reserve the state of the sta	***************************************
RD-1	180-3644-G-7	Amber Glass 1 liter - unpreserved	***************************************	····Ai-	
RD-1	180-3644-H-7	Plastic 500ml - with Nitric Acid	1		
RD-1	180-3644-1-7	Plastic 500ml - unpreserved	**********	· · · · · · · · · · · · · · · · · · ·	
RD-1	180-3644-J-7	Plastic 250ml - with Sulfuric Acid	<u>z</u> _		τ
RD-1	180-3644-K-7	Voa Vial 40ml - unpreserved	-		
RD-1	180-3644-L-7	Voa Vial 40ml - unpreserved			
RD-I	180-3644-M-7	Voa Vial 40ml - unpreserved	· N		
RD-I	180-3644-N-7	Voa Vial 40ml - Hydrochloric Acid	_e		· · · · · · · · · · · · · · · · · · ·
RD-1	180-3644-O-7	Voa Vial 40ml - Hydrochloric Acid		***************************************	
RD-1	180-3644-P-7	Voa Vial 40ml - Hydrochloric Acid		***************************************	
RD-1	180-3644-Q-7	Voa Vial 40ml - Hydrochloric Acid	业		
Page 4 of 7		Page 2129 of 2137	· - • - • -		**************************************

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot#
RD-1	180-3644-R-7	Voa Vial 40ml - Hydrochloric Acid	ℓ	. Nonemportation in the contract and contrac	
RD-I	180-3644-S-7	Voa Vial 40ml - Hydrochloric Acid		·	William Control of the Control of th
RD-1	180-3644-T-7	Voa Vial 40ml - with Sodium		***************************************	**************************************
RD-1	180-3644-U-7	Voa Vial 40ml - with Sodium		Nacional Anna Anna Anna Anna Anna Anna Anna A	
RD-1	180-3644-V-7	Voa Vial 40ml - with Sulfuric Acid		10000000000000000000000000000000000000	
RD-I	180-3644-W-7	Voa Vial 40ml - with Sulfuric Acid	4	***************************************	
RV-1	180-3644-A-8	Plastic 1 liter - unpreserved		***************************************	
RV-1	180-3644-B-8	Amber Glass 1 liter - Hydrochloric	2		
RV-1	180-3644-C-8	Amber Glass 1 liter - Hydrochloric	2	·	
RV-1	180-3644-D-8	Amber Glass 1 liter - Sulfuric Acid	<i>-</i>	to accompany manage is some	
RV-1	180-3644-E-8	Amber Glass 1 liter - Sulfuric Acid	2/		
RV-1	180-3644-F-8	Amber Glass 1 liter - unpreserved	2000		
RV-1	180-3644-G-8	Amber Glass 1 liter - unpreserved			
RV-1	180-3644-H-8	Plastic 500ml - with Nitric Acid	2		
RV-1	180-3644-I-8	Plastic 500ml - unpreserved			
RV-1	180-3644-J-8	Plastic 250ml - with Sulfuric Acid	2		
RV-1	180-3644-K-8	Voa Vial 40ml - unpreserved			
RV-1	180-3644-L-8	Voa Vial 40ml - unpreserved			
RV-1	180-3644-M-8	Voa Vial 40ml - unpreserved	**************************************	***************************************	***************************************
RV-1	180-3644-N-8	Voa Vial 40ml - Hydrochloric Acid	P		
RV-1	180-3644-O-8	Voa Vial 40ml - Hydrochloric Acid	T		A CONTRACTOR OF THE PROPERTY O
RV-1	180-3644-P-8	Voa Vial 40ml - Hydrochloric Acid			
RV-1	180-3644-Q-8	Voa Vial 40ml - Hydrochloric Acid			
RV-I	180-3644-R-8	Voa Vial 40ml - Hydrochloric Acid		. The districtive contravers on the line.	
RV-1	180-3644-9-8	Voa Vial 40ml - Hydrochloric Acid	T	, 100 mm	***************************************
RV-I	180-3644-T-8	Voa Vial 40ml - with Sodium	T		
RV-1	180-3644-U-8	Voa Vial 40ml - with Sodium	T		***************************************
RV-1	180-3644-V-8	Voa Vial 40ml - with Sulfuric Acid	T	w,	
RV-1	180-3644-W-8	Voa Vial 40ml - with Sulfuric Acid			
KDE-1	180-3644-A-9	Plastic 1 liter - unpreserved			White the second
KDE-I	180-3644-B-9	Amber Glass 1 liter - Hydrochloric	2		**************************************
KDB-1	180-3644-C-9	Amber Glass 1 liter - Hydrochloric	マセ	Superior to the superior to th	
KDE-I	180-3644-D-9	Amber Glass 1 liter - unpreserved	oir simmeni .	. In the latest with the second secon	<u></u>
KDE-1	180-3644-B-9	Amber Glass 1 liter - unpreserved	inimiki kemeningal	, nitrali delegan ancesa ancesa ancesa ancesa	***************************************
KDE-1	180-3644-F-9	Amber Glass 1 liter - unpreserved		**************************************	
KDE-I	180-3644-G-9	Amber Glass 1 liter - unpreserved	***************************************		
KDE-1	180-3644-H-9	Plastic 500ml - with Nitric Acid	1	Variable Parties of the Section Control of th	to
KDE-1	180-3644-I-9	Plastic 500ml - unpreserved	***************************************	· Without the control of the control	delicated the second se
KDE-1	180-3644-J-9	Plastic 250ml - with Sulfuric Acid	て		· mercene in the common of the
Page 5 of 7	्का व्यक्तक शक्तिको तिश्वी शक्ति क्रिंग् व	- AND THE PROPERTY AND THE PARTY OF THE PART	***************************************	46000000000000000000000000000000000000	
rage a or r		Page 2130 of 2137		91.	

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mla)	Lot#
KDE-1	180-3644-K-9	Voa Vial 40ml - unpreserved	<u> </u>	***************************************	
KDB-1	180-3644-L-9	Voa Vial 40ml - unpreserved		***************************************	
KDE-1	180-3644-M-9	Voa Vial 40ml - unpreserved	***************************************	· · · · · · · · · · · · · · · · · · ·	
KDE-1	180-3644-N-9	Voa Vial 40ml - Hydrochloric Acid	P		, sia mani ini ina mani ina m
KDE-1	180-3644-O-9	Voa Vial 40ml - Hydrochloric Acid	4	Name of the last o	(4) harmon and an annual relativistic states
KDE-1	180-3644-P-9	Voa Vial 40ml - Hydrochloric Acid		· ·	
KDE-1	180-3644-Q-9	Voa Vial 40ml - Hydrochloric Acid		-	*
KDE-I	180-3644-R-9	Voa Vial 40ml - Hydrochloric Acid	1	AND THE PERSON NAMED IN COLUMN 1	
KDE-1	180-3644-8-9	Voa Vial 40ml - Hydrochloric Acid			<u> </u>
KDE-1	180-3644-T-9	Voa Vial 40ml - Hydrochloric Acid		-	
KDE-1	180-3644-U-9	Voa Vial 40ml - Hydrochloric Acid	<u></u> _		
KDE-1	180-3644-V-9	Voa Vial 40ml - with Sulfuric Acid			
KDE-1	180-3644-W-9	Voa Vial 40ml - with Sulfuric Acid	$\overline{\Psi}$	- epolygiana ang ang ang ang ang ang ang ang ang	***************************************
N-L	180-3644-A-10	Plastic 1 liter - unpreserved	·	management of the state of the	
N-1	180-3644-B-10	Amber Glass 1 liter - Hydrochloric	ママ	A	
N-1	180-3644-C-10	Amber Glass 1 liter - Hydrochloric	2	*	
NI	180-3644-D-10	Amber Glass 1 liter - unpreserved	٠٠ مستقالاللليل	***************************************	
N-1	180-3644-E-10	Amber Glass 1 liter - unpreserved	alastiinnii		
N-I	180-3644-F-10	Amber Glass 1 liter - unpreserved	· Commence of	egaphonomical and an analysis of the control of the	
N-I	180-3644-G-10	Amber Glass 1 liter - unpreserved		h	
N-1	180-3644-H-10	Plastic 500ml - with Nitric Acid	2	Miles (Miles (Miles and America)	
N-1	180-3644-I-10	Plastic 500ml - unpreserved			
N-1	180-3644-J-10	Plastic 250ml - with Sulfuric Acid	ュ		
N-1	180-3644-K-10	Voa Vial 40ml - unpreserved			
N-1	180-3644-L-10	Voa Vial 40mi - unpreserved	tomonion.		
N-1	180-3644-M-10	Voa Vial 40ml - unpreserved			
N-1	180-3644-N-10	Voa Vial 40ml - Hydrochloric Acid	4		
N-1	180-3644-O-10	Voa Vial 40ml - Hydrochloric Acid	1		
N-1	180-3644-P-10	Voa Vial 40ml - Hydrochloric Acid	T		
N-1	180-3644-Q-10	Voa Vial 40mi - Hydrochloric Acid			
N-1	180-3644-R-10	Voa Vial 40mi - Hydrochloric Acid			
N-1	180-3644-S-10	Voa Vial 40ml - Hydrochloric Acid		,	- 4
N-1	180-3644-T-10	Voa Vial 40ml - with Sodium		015348611	
N-1	180-3644-U-10	Voa Vial 40ml - with Sodium	T	0133440W	
N-1	180-3644-V-10	Voa Vial 40ml - with Sulfuric Acid	J		
N-1	180-3644-W-10	Voa Vial 40ml - with Sulfuric Acid	エ	***************************************	W
D-1	180-3644-A-11	Plastic 1 liter - unpreserved	, Marie Company Marie C	***************************************	
D-1	180-3644-B-11	Amber Glass 1 liter - Hydrochloric	2	·*************************************	
D-1	180-3644-C-11	Amber Glass 1 liter - Hydrochloric	~	**************************************	**************************************
-	contraver const. The contract of the contract		-		Yes in the second of the secon

Page 2131 of 2137

Page 6 of 7

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot#
D-I	180-3644-D-11	Amber Glass 1 liter - Sulfuric Acid	2	**************************************	
D-I	180-3644-E-11	Amber Glass 1 liter - unpreserved	*****************	***	
D-I	180-3644-F-11	Amber Glass 1 liter - unpreserved	· management .	grant or agrant Manual Advanta	· ·
D-I	180-3644-G-11	Amber Glass 1 liter - unpreserved	international control	· ·	***************************************
D-I	180-3644-H-11	Plastic 500ml - with Nitric Acid	~.		-
D-I	180-3644-I-11	Plastic 500ml - unpreserved	-	·	· ************************************
D-1	180-3644-J-11	Plastic 250ml - with Sulfuric Acid	2	***************************************	***************************************
D-1	180-3644-K-11	Voa Vial 40ml - unpreserved	- monocontinuosos		No. of the control of
D-1	180-3644-L-11	Voa Vial 40ml - unpreserved	- (Bushledmannshirmout)		NOTE THE PROPERTY OF THE PROPE
D-1	180-3644-M-11	Voa Vial 40ml - unpreserved	distance of the second		
D-1	180-3644-N-11	Voa Vial 40ml - Hydrochloric Acid	P	distance of the second of the	
D-1	180-3644-0-11	Voa Vial 40ml - Hydrochloric Acid		<u></u>	·····
D-1	180-3644-P-11	Voa Vial 40ml - Hydrochloric Acid			**************************************
D-1	180-3644-Q-11	Voa Vial 40ml - Hydrochloric Acid		oneotomen and outside greater.	
D-1	180-3644-R-11	Voa Vial 40ml - Hydrochloric Acid		5··	***************************************
D-1	180-3644-S-11	Voa Vial 40ml - Hydrochloric Acid			·
D-1	180-3644-T-11	Voa Vial 40ml - with Sodium		01334401	· · · · · · · · · · · · · · · · · · ·
D-1	180-3644-U-11	Voa Vial 40ml - with Sodium		0133440W	
D-I	180-3644-V-11	Voa Vial 40ml - with Sulfuric Acid		SROWZ-11	
D-1	180-3644-W-11	Voa Vial 40ml - with Sulfuric Acid		520032-11	*
TRIP BLANK	180-3644-A-12	Voa Vial 40ml - Hydrochloric Acid	1_	i den este principal del principa con persona di la cidada del cidada de la cidada del cidada del cidada del cidada de la cidada de la cidada del cidada	**************************************
TRIP BLANK	180-3644-B-12	Voa Vial 40ml - Hydrochloric Acid		-	·
TRIP BLANK	180-3644-C-12	Voa Vial 40ml - Hydrochloric Acid	业	international control of .	

Page 7 of 7

APPENDIX D

Laboratory Case Narrative



ANALYTICAL REPORT

Job Number: 180-3644-1

Job Description: Focused Site Assessment

For:

URS Corporation Foster Plaza 4 501 Holiday Drive, Suite 300 Pittsburgh, PA 15220

Attention: Mr. James Pinta, Jr.

rwG. Camber

Approved for release Cente L Gamber Project Menager II

Carrie L Gamber
Project Manager II
carrie.gamber@testamericainc.com
10/05/2011

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of TestAmerica and its client. All questions regarding this report should be directed to the TestAmerica Project Manager or designee who has signed this report.

TestAmerica Laboratories, Inc.

TestAmerica Pittsburgh 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238 Tel (412) 963-7058 Fax (412) 963-2468 www.testamericainc.com

Page 1 of 2137

CASE NARRATIVE

Client: URS Corporation

Project: Focused Site Assessment

Report Number: 180-3644-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 09/06/2011; the samples arrived in good condition, properly preserved and on ice.

The laboratory received a broken 1-liter bottle for sample FPT-1 (180-3644-3).

The laboratory did not receive sulfuric acid preserved vials for samples FPT-1 (180-3644-3) and D-1 (180-3644-11). An aliquot was taken from an un-preserved 1-liter amber glass bottle and preserved for TOC.

No Sodium thiosulfate vials were received for samples FPT-1 (180-3644-3), D-1 (180-3644-11), and N-1 (180-3644-10). An aliquot was taken from an un-preserved 1-liter amber glass bottle and preserved for method 8011.

The DRO volume for sample FPT-1 (180-3644-3) was received in a 11-liter plastic container.

LOW LEVEL VOLATILE ORGANIC COMPOUNDS

Chloroform, Naphthalene and Toluene were detected in method blank MB 180-14017/3 at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged.

8011 GAS CHROMATOGRAPHY

No difficulties were encountered during the EDB analyses.

SEMIVOLATILE ORGANIC COMPOUNDS (GC-MS)

No difficulties were encountered during the semivolatiles analyses.

GAS RANGE ORGANICS

GRO (C6-C10) was detected in method blank MB 480-30437/3 at a level that was above the method detection limit but below the reporting limit. The value should be considered estimate, and has been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged.

DISSOLVED GASES

Due to the concentration of target compounds detected, samples H-1 (180-3644-1)[1000X], FH-1 (180-3644-2)[20X], R-1 (180-3644-5)[1000X], R-1 (180-3644-5)[200X], R-2 (180-3644-6)[100X], R-2 (180-3644-6)[1000X] and KDE-1 (180-3644-9)[10X] were analyzed at a dilution. The reporting limits have been adjusted accordingly.

GLYCOLS

The matrix spike and matrix spike duplicate of sample H-1 (180-3644-1) recovered outside of the control limits for Triethylene Glycot.

DIESEL RANGE ORGANICS

No difficulties were encountered during the DRO analyses.

METALS

The serial dilution of sample H-1 (180-3644-1) was outside of the percent difference control limits for several metals.

Page 8 of 2137

The method blanks had analytes detected at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged.

The sodium concentrations found in the continuing calibration blanks three thru eight (CCB3 thru CCB8) were greater than the reporting limit (100ug/l) All associated samples bracketed by these CCB's had sodium concentrations at least 100x greater than the CCB concentrations. The CCB concentrations were more than likely caused by "memory effect" and no positive bias in the results is suspected

The manganese concentrations found in the continuing calibration blanks five, seven and eight (CCB5, CCB7 and CCB8) were greater than the reporting limit (0.5ug/l). All associated samples bracketed by these CCB's had manganese concentrations at least 10x greater than the CCB concentrations. The CCB concentrations were more than likely caused by "memory effect" and no positive bias in the results is suspected.

GENERAL CHEMISTRY

pH is a field parameter. Laboratory pH analysis was completed at the request of the client.

The samples were analyzed outside of the holding time for MBAS.

Due to the matrix, the initial volume used for the following sample deviated from the standard procedure for method 2540D: S-1 (180-3644-4). The reporting limits (RLs) have been adjusted proportionately.

The method blanks had analytes detected at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged.

Page 9 of 2137